ENGINEERING & FACILITIES PIPE LABELING STANDARDS

1.01 PIPE AND DUCT LABELS

A. Round Pipe and Duct Markers shall conform to ANSI A13.1-2007 "Scheme for the Identification of Piping Systems", refer to Appendix “A” for abbreviation and label color designations. Medical Gas piping shall conform to JHACO and NFPA 90 requirements. Arrow markers must have same background colors as their companion pipe markers, or be incorporated into the pipe identification marker.

B. Rectangular Duct Labels shall conform to ANSI A13.1-2007 "Scheme for the Identification of Piping Systems", refer to Appendix “A” for abbreviation and label color designations. Letter height shall be a minimum of 1-1/4”.

1.02 OBTAINING PIPE AND DUCT LABELS

A. The Engineering & Facilities Storeroom will stock and have available for purchase a set number of “Standard” labels (See Appendix A). All other labels can be ordered from the storeroom as a “Custom” order.

B. See Appendix “B” and for label obtaining process.

C. Provide an arrow marker with each pipe marker pointing away from the pipe marker to indicate direction of flow.

D. Provide a double-ended arrow marker when flow can be in either or both directions.

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Approved By:		Effective Date:
John C. Malmrose **Chief Facilities Officer** **Engineering & Facilities**	**Rick Terhune** **Business Manager** **Engineering and Facilities**	**January 1, 2006**

1.03 APPLICATION OF LABELS

A. The shop that installs the associated piping or duct will be responsible for applying the correct labels. If the piping is to be insulated or painted after installation, the original shop must return to place the labels. If existing piping is to be insulated and labeled it will be the insulators responsibly to apply the correct labels.

B. Piping runs throughout any areas including those above drop ceilings, under floor, and those exposed to view when access doors or access panels are opened shall be identified by means of pipe markers. Concealed areas, for purposes of this identification section, are those areas that cannot be seen except by demolition of the building elements. In addition to pipe markers, arrow markers shall be used to indicate direction of flow.

C. As a minimum, locate pipe markers as follows:

1. Provide a pipe marker at each valve to indicate proper identification of pipe contents. Where several valves exist on one (1) header, it is necessary to mark only the header.

2. Every 25 feet in exposed and concealed areas on all piping systems. Provide at least one (1) pipe marker in each room on all piping systems.

3. At each branch or riser take off on piping systems, excluding short takeoffs for fixtures and terminal units.

4. Provide a pipe marker and an arrow marker at every point of pipe entry or exit where the pipe penetrates a wall, floor, service column or enclosure.

5. At access doors, manholes and similar access points that permit view of concealed piping.

6. Near major equipment items and other points of origination and termination.

Appendix A

Mechanical/Plumbing Piping System Label Sizing

Outside Pipe Diameter Including Insulation	Minimum Height of Letters	Label Height	Minimum Label Length	Store Room Sizing
.75" - 2"	.75"	1.125"	8"	Small (S)
2.5" - 6"	1.25"	2.25"	12"	Medium (M)
8" - 10"	2.5"	4"	24"	Large (L)
Over 10"	3.5"	4"	32"	Extra Large (XL)

Mechanical/Plumbing Piping System Abbreviations and Letter/Label Coloring

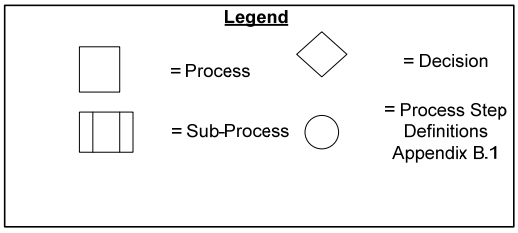
	Pipe Contents	Label	Label Colors (Background/Text)	Regulation	Store Room Sizing
Standard Labels	Laboratory air	Air	Blue/White	ASME A13.1	Small
	Carbon Dioxide	Carbon Dioxide	Gray/White	NFPA 99, JHACO	Small
	Chilled Water Return	Chilled Water Return	Green/White	ASME A13.1	Medium
	Chilled Water Supply	Chilled Water Supply	Green/White	ASME A13.1	Medium
	Condensate Return	Condensate	Green/White	ASME A13.1	Medium
	Reverse Osmosis or Deionized Water	Deionized Water	Green/White	ASME A13.1	Small
	Domestic Cold Water	Domestic Cold Water	Green/White	ASME A13.1	Medium
	Domestic Hot Water Return	Domestic Hot Water Return	Green/White	ASME A13.1	Medium
	Domestic Hot Water Supply	Domestic Hot Water Supply	Green/White	ASME A13.1	Medium
	Fuel Oil Return	Fuel Oil Return	Yellow/White	ASME A13.1	Small
	Fuel Oil Supply	Fuel Oil Supply	Yellow/White	ASME A13.1	Small
	High Pressure Steam (>15psi)	High Pressure Steam	Green/White	ASME A13.1	Medium
	Hot Water Heating Return	Hot Water Heating Ret.	Green/White	ASME A13.1	Medium
	Hot Water Heating Supply	Hot Water Heating Sup.	Green/White	ASME A13.1	Medium
	Low Pressure Steam (<15psi)	Low Pressure Steam	Green/White	ASME A13.1	Medium
	Natural Gas	Natural Gas	Yellow/Black	ASME A13.1	Medium
	Sanitary Waste Drain	Sanitary Waste	Green/White	ASME A13.1	Medium
	Laboratory Vacuum	Vacuum	White-black checkerboard / black boxed	NFPA 99, JHACO	Small

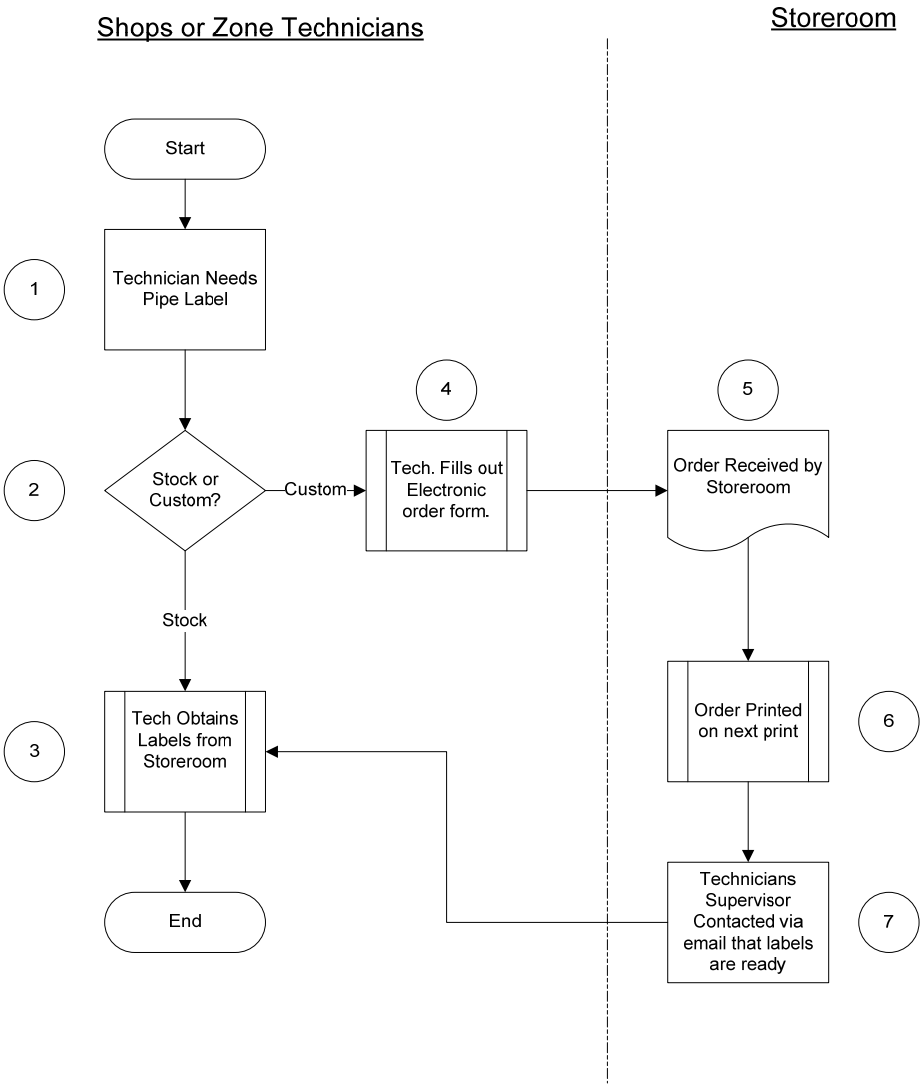
Appendix A (Cont.)

	Pipe Contents	Label	Label Colors (Background/Text)	Regulation	Store Room Sizing
Common Custom Labels	Acid Waste	Acid Waste	Orange/Black	ASME A13.1	S,M
	Biosafety Cabinet Exhaust	Biosafety Cabinet Exhaust	Purple/white	ASME A13.1	L,XL
	Boiler Feed Water	Boiler Feed Water	Green\White	ASME A13.1	S,M,L,XL
	Brine Water	Brine Water	Orange/Black	ASME A13.1	S,M
	Chemical Fume Hood Exhaust	Chemical Fume Hood Exhaust	Purple/white	ASME A13.1	L,XL
	Condenser Water Return	Condenser Water Return	Green/White	ASME A13.1	S,M,L,XL
	Condenser Water Supply	Condenser Water Supply	Green/White	ASME A13.1	S,M,L,XL
	Ethylene Oxide Exhaust	ETO Exhaust	Purple/white	ASME A13.1	L,XL
	Fire Sprinkler Water	Fire Sprinkler Water	Red/White	ASME A13.1	S,M
	Hazardous Waste	Hazardous Waste	Orange/Black	ASME A13.1	S,M
	Helium	Helium	Brown / white	NFPA 99, JHACO	S
	Instrument air	Instrument air	Red / white	NFPA 99, JHACO	S,M
	Medical air	Medical air	Yellow/black	NFPA 99, JHACO	S
	Medical–Surgical Vacuum	Medical Vacuum	White / black	NFPA 99, JHACO	S,M,L,XL
	Nitrogen (liquid)	Nitrogen (liquid)	Black/White	NFPA 99, JHACO	S
	Nitrogen	Nitrogen	Black/white	NFPA 99, JHACO	S
	Nitrous oxide	Nitrous Oxide	Blue/white	NFPA 99, JHACO	S
	Oxygen	Oxygen	Green/white	NFPA 99, JHACO	S,M,L,XL
	Radioisotope Exhaust	Radioisotope Exhaust	Purple/White	ASME A13.1	L,XL

Appendix B

Process for obtaining standard and custom labels from Storeroom: For individual Step-Definitions see Appendix B.1





Appendix B.1

PROCESS STEP DEFINITIONS

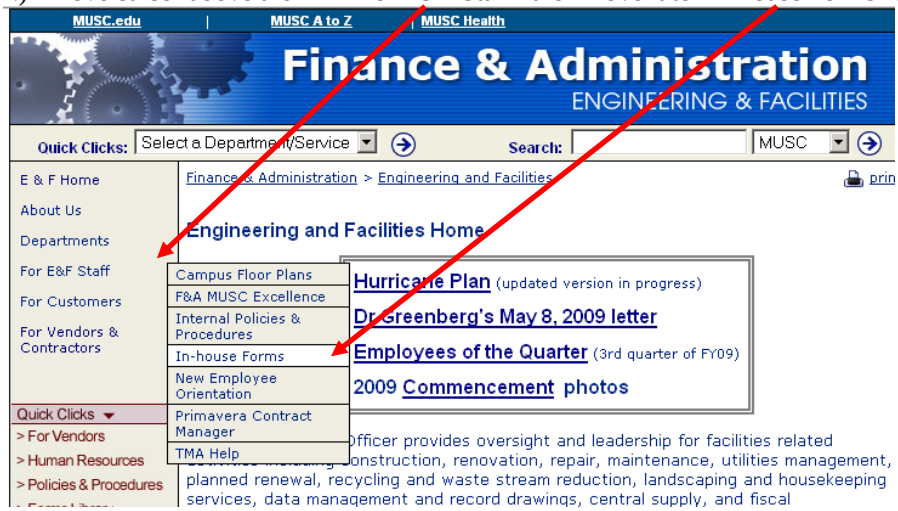
1	Process Start: Technician Needs Pipe Label	Technician is installing piping or equipment that is standard for Engineering & Facilities to label.
2	Stock or Custom	Technician checks E&F standards and/or with the storeroom to see if desired label is carried in their stock or if it needs to be printed custom.
3	Technician obtains Label(s) from storeroom.	Technician obtains materials from storeroom according to storerooms standard materials handling procedure.
4	Technician fills out Web-Based Order Form	The technician goes to the Engineering & Facilities website ->For E&F Staff-> In-house Forms-> Equipment or Pipe Label Request and fills out an order form. (See Appendix B.1.1 for procedural details)
5	Order Received by Storeroom	The order form is submitted via email to the designated storeroom employee.
6	Order Printed on Next Print	The storeroom employee systematically prints the labels as ordered, charges them to the work order, and stores them along with order form for pickup. (See Appendix B.1.2 for sub-process)
7	Technicians supervisor contacted via email that labels are ready.	The technician and their supervisor are contacted via email that the labels are ready for pickup.

Appendix B.1.1

Custom Pipe Label Online Order Form Process

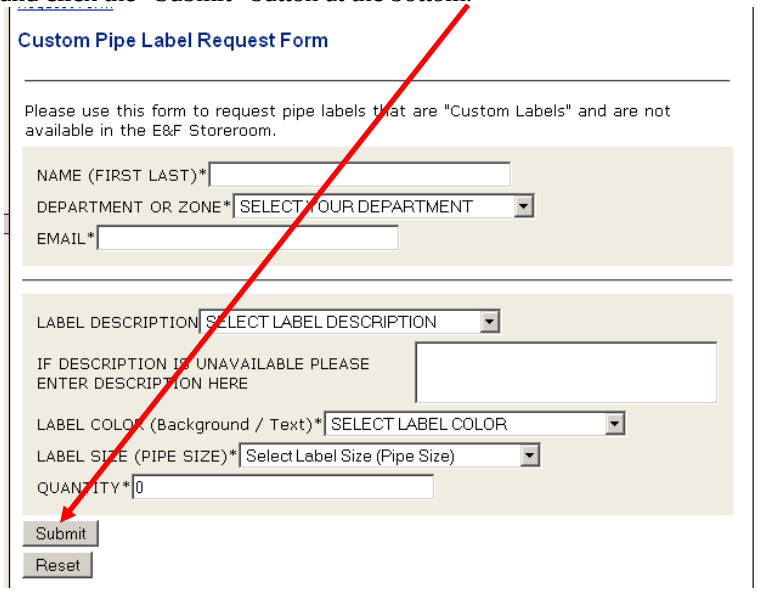
1.) Go to the Engineering & Facilities Website: http://academicdepartments.musc.edu/vpfa/eandf/

2.) Move cursor above the link "For E&F Staff" then move it to "In house Forms" and click.



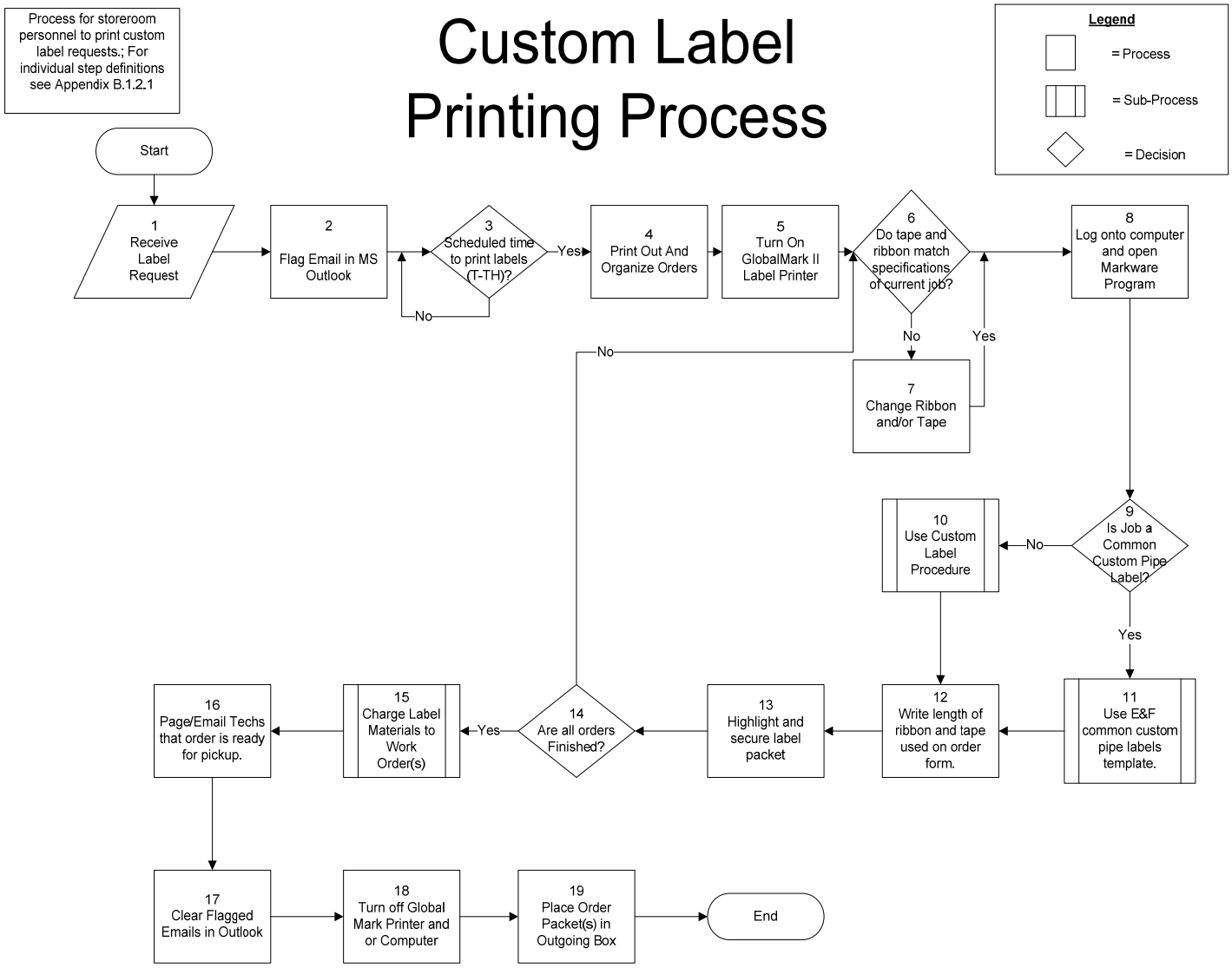
3.) Now move cursor over "Custom Pipe Label Request" and click.

4.) This will bring you to the custom Pipe Label Request form. Fill out all required fields as indicated on the form and click the "Submit" button at the bottom.


Custom Pipe Label Request Form
Please use this form to request pipe labels that are "Custom Labels" and are not available in the E&F Storeroom.
NAME (FIRST LAST)*
DEPARTMENT OR ZONE*
SELECT YOUR DEPARTMENT
EMAIL*
LABEL DESCRIPTION
SELECT LABEL DESCRIPTION
IF DESCRIPTION IS UNAVAILABLE PLEASE ENTER DESCRIPTION HERE
LABEL COLOR (Background / Text)*
SELECT LABEL COLOR
LABEL SIZE (PIPE SIZE)*
Select Label Size (Pipe Size)
QUANTITY*
0
Submit
Reset

5.) You are finished! Your Custom Pipe Label Request has been sent to the storeroom. You (and your supervisor) will be contacted via email and or pager in 1-3 days regarding pickup from the storeroom.

Appendix B.1.2


Process for storeroom personnel to print custom label requests.; For individual step definitions see Appendix B.1.2.1
Custom Label Printing Process
Legend
= Process
= Sub-Process
= Decision
Start
1 Receive Label Request
2 Flag Email in MS Outlook
3 Scheduled time to print labels (T-TH)?
Yes
No
4 Print Out And Organize Orders
5 Turn On GlobalMark II Label Printer
6 Do tape and ribbon match specifications of current job?
No
Yes
7 Change Ribbon and/or Tape
8 Log onto computer and open Markware Program
9 Is Job a Common Custom Pipe Label?
No
Yes
10 Use Custom Label Procedure
11 Use E&F common custom pipe labels template.
12 Write length of ribbon and tape used on order form.
13 Highlight and secure label packet
14 Are all orders Finished?
Yes
No
15 Charge Label Materials to Work Order(s)
16 Page/Email Techs that order is ready for pickup.
17 Clear Flagged Emails in Outlook
18 Turn off Global Mark Printer and or Computer
19 Place Order Packet(s) in Outgoing Box
End

Appendix B.1.2.1

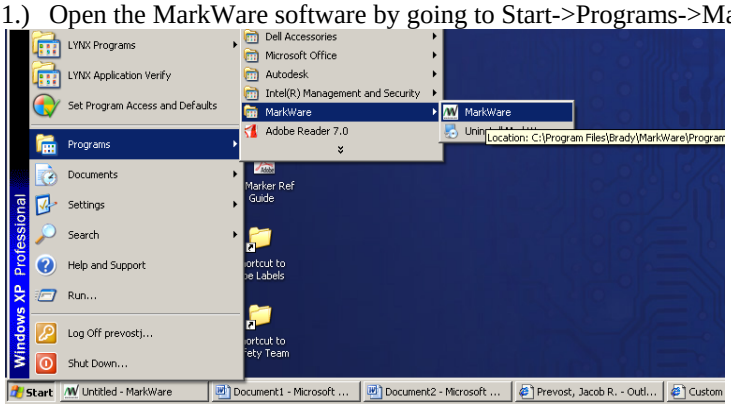
Custom Label Printing Process
Step Definitions

01	Receive Label Request	The designated storeroom personnel (DSP) will automatically receive an Email when the online form is submitted by a customer.
02	Flag Email in MS Outlook	The DSP will flag the Email (using Microsoft Outlook) for Follow-Up. This will be done by right clicking on email, then scrolling down to "Follow-Up", then picking the following Tuesday or Thursday (whichever is closer) as the due date/reminder time.
03	Scheduled time to print labels?	The DSP will a schedule of printing labels on Tuesday and Thursday of each week. If no orders are received, then schedule can be skipped for that iteration.
04	Print Out Orders	orders together to minimize switching of tape and ribbon in printer. First sort so orders with the same ribbon color are together. Next try to group according to the same vinyl color and size.
05	Turn on Global Mark II	Turn the label printer on using on/off switch located on the right side.
06	Do tape and ribbon match specifications for current job?	Check the color and size of both the Vinyl Tape and Ribbon cartridges against those indicated on the current print job order form. If they are correct, then proceed. If they are not they will need to be changed.
07	Change Ribbon and/or Tape	Change out the ribbon and /or tape size and color to match those indicated on the current print job. This process is outlined in Chapter 2 of the users manual.
08	Log onto Computer and open Markware Program	Log onto the asocciated computer; Once booted go to Start-> Programs->Markware
09	Is Job a Common Custom Pipe Label?	Check order form against list of Common Custom Pipe Labels which is located in the E&F pipe labeling policy, and on the front laminated cheat sheet in the users manual.
10	Use Custom Label Procedure	Follow the custom label creation and print procedure as outlined in Section 6-1 of the Global Mark II Users Manual
11	Use E&F common custom pipe labels template.	Follow the premade pipe marker template as outlined in procedure. (See Appendix B.1.2.2)
12	Write length of ribbon/tape used on order form.	Use the ruler on the screen to note the length of the label in inches. Then multiply the length of one label times the number of labels printed for that order. Write this number as the quantity on the order form.
13	Highlight shop and secure order packet	Use a highlighter to highlight both the shop, and name of person who made order. Then use a paper or binder clip to attach the order form to its associated labels. This is called a "Label Packet".
14	Are all orders finished?	Check that all orders that were printed have labels clipped to them.
15	Charge label materials to Work Order(s)	Use the MC-80 storeroom scanner to input WO, Technicians ID #, PartCode, and Quantity (in) of the associated Ribbon and Tape used for each order.
16	Page/Email Technicians that order is ready to be picked up.	Hit reply to label request email in outlook. This should automatically enter the email address of the customer. Next in the CC address box put the customers pager # (Found on the original order form) then @simon.musc.edu. Example: If the customers pager # is 12345 it would be "12345@simon.musc.edu". Last erase the entire body of the previous email, and type in the body "Your label request is ready to be picked up from the storeroom". Then click send. This will send the customer both an email and page with that message.
17	Clear Flagged emails in MS Outlook	Clear the flags off of the label request emails orders in outlook that were just finished ; Highlight the email(s), scroll to "Follow Up", then scroll down to "Clear Flag" then left click. This will clear the follow up flag from the jobs just completed.
18	Turn off Printer and Computer	Turn the Global Mark II printer off by using the on/off switch on the right hand side. Log off the computer.
19	Place order packet(s) in Pick-Up box	Walk all label packets over to the designated label pick up box near the front counter.

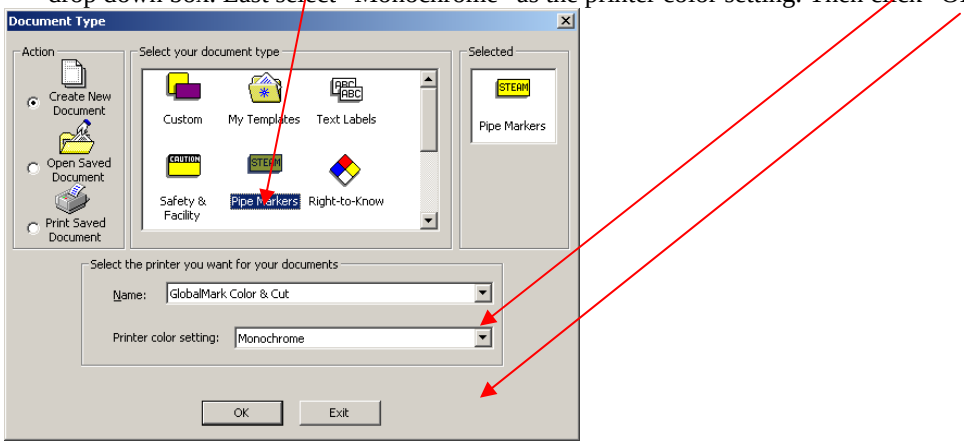
Appendix B.1.2.2

PREMADE PIPE MARKER TEMPLATE PROCEDURE

1.) Open the MarkWare software by going to Start->Programs->MarkWare->MarkWare

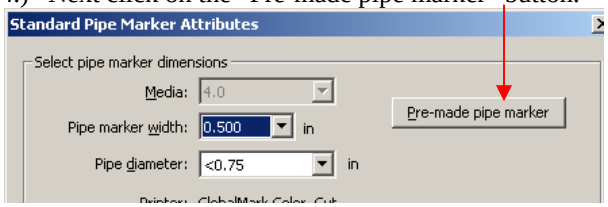


2.) Next highlight "Pipe Markers" as the document type, then select the "Global Mark Color & Cut" Printer from the drop down box. Last select "Monochrome" as the printer color setting. Then click "OK"



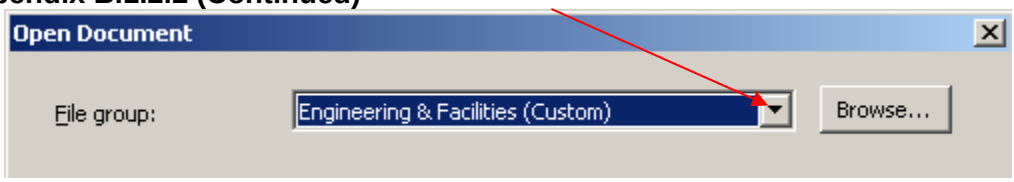
3.) Select "Standard" then click OK

4.) Next click on the "Pre-made pipe marker" button.

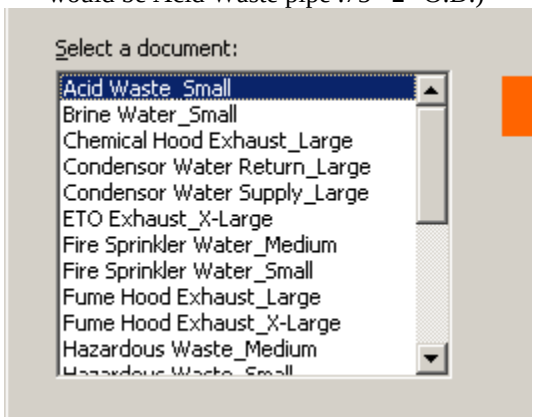


5.) Select "Engineering and Facilities (Custom)" from the drop down box

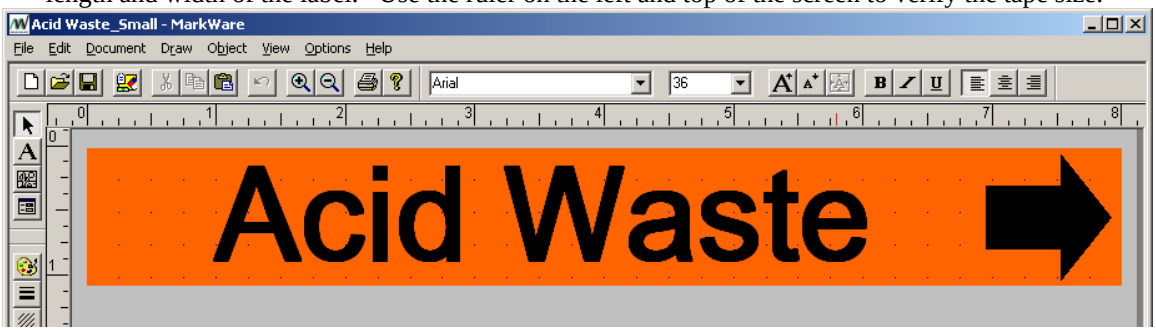
Appendix B.1.2.2 (Continued)



6.) Highlight the type and size of pipe label that you want to print from the scroll box: (Example- Acid Waste-Small would be Acid Waste pipe .75”-2” O.D.)



7.) A color coded example should display on the screen. This will show the text, and back ground color along with the length and width of the label. *Use the ruler on the left and top of the screen to verify the tape size.



8.) Next verify that the print ribbon (Text) is the correct color in the Global Mark 2 printer (i.e. Black text = black ribbon). Verify that the Tape (Background) the correct size and color (i.e. Orange background at 1.125” = 1.125” Orange Tape).

a. To obtain instructions on how to change the ribbon cartridge go to page 2-5 in the Global Mark 2 user manual.
b. To obtain instruction on how to change the tape cartridge go to page 2-7 in the Global Mark 2 user manual.

8.) Next go to File-> Print and a Print Window will pop up. Select the number of copies (# of Stickers) and click OK